

Software Provisioning Manager 1.0
Document Version: 2.3 – 2017-02-08

Installation of a Standalone SAP Gateway Instance for SAP Systems Based on SAP NetWeaver 7.0 to 7.03 on UNIX



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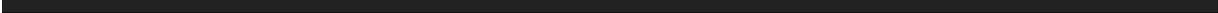
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Document History

Note

Before you start the implementation, make sure you have the latest version of this document that is available at <http://service.sap.com/instguides>.

The following table provides an overview on the most important document changes:

Table 1:

Version	Date	Description
2.3	2017-02-06	Updated version for software provisioning manager 1.0 SP19 (SL Toolset 1.0 SP19)
2.2	2016-10-07	Updated version for software provisioning manager 1.0 SP18 (SL Toolset 1.0 SP18)
2.1	2016-06-06	Updated version for software provisioning manager 1.0 SP17 (SL Toolset 1.0 SP17)
2.0	2016-02-15	Updated version for software provisioning manager 1.0 SP10 (SL Toolset 1.0 SP16)
1.9	2015-10-12	Updated version for software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP15)
1.8	2015-09-14	Updated version for software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP14)
1.7	2015-04-27	Updated version for software provisioning manager 1.0 SP08 (SL Toolset 1.0 SP13)
1.6	2014-11-24	Updated version for software provisioning manager 1.0 SP07 (SL Toolset 1.0 SP12)
1.5	2014-07-07	Updated version for software provisioning manager 1.0 SP06 (SL Toolset 1.0 SP11)

Version	Date	Description
1.4	2014-03-17	Updated version for software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP10)
1.3	2013-10-28	Updated version
1.2	2013-07-15	Updated version
1.1	2013-04-12	Updated version
1.0	2012-12-17	Initial version

1 Introduction

1.1 About this Document

This installation guide describes how to install a **standalone** Gateway for SAP systems based on SAP NetWeaver using the installation tool software provisioning manager 1.0 SP19 (“installer” for short), which is part of SL Toolset 1.0 SP19.

You can find a complete list of supported SAP system products in SAP Note [1680045](#).

Each instance of an SAP system with AS ABAP has a Gateway. The Gateway enables communication between work processes and external programs, as well as communication between work processes from different instances of SAP systems.

With a **standalone** Gateway, you can install the Gateway service separately from the SAP system. In this case, the SAP system can access each external Gateway under a different Remote Function Call (RFC) connection.

i Note

There is no difference between a standalone Gateway instance for a Unicode system and a standalone Gateway for a non-Unicode system.

1.2 About Software Provisioning Manager

Software Provisioning Manager 1.0 is the successor of the product- and release-specific delivery of provisioning tools, such as SAPinst. Before you run it, we recommend that you always download the latest version of Software Provisioning Manager 1.0. Software Provisioning Manager 1.0 is part of the Software Logistics Toolset 1.0 (“SL Toolset” for short). This way, you automatically get the latest fixes and supported processes. For more information about Software Provisioning Manager as well as products and releases supported by it, see SAP Note [1680045](#) and <http://scn.sap.com/docs/DOC-30236>. “SAPinst” has therefore been renamed to “Software Provisioning Manager 1.0” in this documentation. However, the term “SAPinst” is still used in:

- Texts and screen elements in the Software Provisioning Manager GUI
- Naming of executables, for example `sapinst.exe`

In the following, we generally refer to Software Provisioning Manager 1.0 as the “installer”. We only use the term “Software Provisioning Manager 1.0” if this is required for technical reasons.

- **⚠ Caution**

SAP is going to restrict maintenance for operating system versions that have been initially released with SAP kernel 7.2<x> but are no longer supported for SAP kernel 7.40 and higher. The following Software Provisioning Manager operating system versions are affected:

- Only valid for 'Platform': Linux
LINUX ON IA32 32BIT
End of 'Platform': Linux
- Only valid for 'Platform': Linux
LINUX ON IA64 64BIT
End of 'Platform': Linux
- Only valid for 'Platform': Linux, z/OS
LINUX ON X86_64 64BIT, LINUX S390X 64BIT, LINUX PPC 64 BIT: SLES9, SLES10, SLES11 (<SP2 and SP3, both with GCC runtime < 4.8), RHEL4, RHEL5, ORACLE5
For more information, see SAP Note [2195019](#).

i Note

SAP S/4HANA 1610 is not supported for SLES11 lower than SP4 and is therefore **not** available when using RMOSWPM*.SAR .

- End of 'Platform': Linux, z/OS
- Only valid for 'Platform': HP-UX
HP-UX ON PA-RISC 64BIT
End of 'Platform': HP-UX
- Only valid for 'Platform': HP-UX
IHP-UX ON IA64 64BIT: < 11.31
End of 'Platform': HP-UX
- Only valid for 'Platform': AIX
AIX 64BIT: < 6.1
End of 'Platform': AIX
- Only valid for 'Platform': Oracle Solaris
SOLARIS ON SPARC 64BIT: < 10 aka 5.10
End of 'Platform': Oracle Solaris

With the release of Software Provisioning Manager 1.0 SPS 18, the 70SWPM*.SAR archive will stop working on the above listed outdated operating system versions.

Instead of using the 70SWPM*.SAR archive, you must use the RMOS70SWPM*.SAR archive for these outdated operating system versions.

Keep in mind that the RMOS70SWPM*.SAR archive will not receive improvements in the future. SAP maintenance for RMOS70SWPM*.SAR will be finally stopped by the end of 2017.

SAP recommends upgrading the operating system to a more recent version and using RMOS70SWPM*.SAR to export from existing SAP systems.

Related Information

[Preparing the Installation Media \[page 27\]](#)

1.3 SAP Notes for the Installation

You **must** read the following SAP Notes **before** you start the installation. These SAP Notes contain the most recent information on the installation, as well as corrections to the installation documentation.

Make sure that you have the up-to-date version of each SAP Note which you can find in the SAP Service Marketplace at <http://service.sap.com/notes>.

Table 2: SAP Notes for the Installation

SAP Note Number	Title	Description
1680045	Release Note for Software Provisioning Manager 1.0	Software provisioning manager 1.0 with installation and system copy for SAP NetWeaver-based systems
1760513	Inst. Standalone Gateway for SAP Systems Based on SAP NetWeaver 7.0 incl. EHPs	Additional Information about standalone Gateway installation.
2378874	Install SAP Solutions on Linux on IBM Power Systems (little endian)	Information about how to install SAP solutions on Linux on IBM Power Systems (little endian)

1.4 Accessing the SAP Library

The references to **SAP NetWeaver Library** documentation in this installation guide always refer to the following on SAP Help Portal:

Table 3:

Product and Release	SAP Library Path
SAP systems based on SAP NetWeaver 7.3	http://help.sap.com/nw73 ▶ <i>Application Help</i> ▶ <i>Function-Oriented View: English</i> ▶
SAP systems based on SAP NetWeaver 7.3 including Enhancement Package 1	http://help.sap.com/nw731 ▶ <i>Application Help</i> ▶ <i>Function-Oriented View: English</i> ▶

Product and Release	SAP Library Path
SAP systems based on SAP NetWeaver 7.4	http://help.sap.com/nw74 ▶ Application Help ▶ Function-Oriented View: English ▶
SAP systems based on SAP NetWeaver 7.5	http://help.sap.com/nw75 ▶ Application Help ▶ Function-Oriented View: English ▶

1.5 Naming Conventions

In this documentation, the following naming conventions apply:

i Note

From a technical point of view, the standalone Gateway is set up like an SAP system with its own SAP system ID (SAPSID), its own operating system users, and its own directory structure.

- *installer* refers to *software provisioning manager 1.0*.
- *SAP system* refers to *standalone gateway*.
- *instance* refers to *astandalone gateway instance*.

2 Planning

2.1 Hardware and Software Requirements

You check that your hosts meet the hardware and software requirements for your operating system and the Gateway instance.

Caution

If your hosts do not fully meet the requirements, you might experience problems when working with the SAP system.

Process Flow

1. Check the *Product Availability Matrix* at <http://service.sap.com/pam> for supported operating system releases.
2. If you want to use the standalone Gateway for a **production** system, the values provided by the Prerequisite Checker and the hardware and software requirements checklists are not sufficient. In addition, do the following:
 - You use the hardware sizing information available at <http://service.sap.com/sizing>.
 - You contact your hardware vendor, who can analyze the load and calculate suitable hardware sizing depending on:
 - The set of applications to be deployed
 - How intensively the applications are to be used
 - The number of users

2.1.1 Hardware and Software Requirements Tables

Use

The Gateway host must meet at least the following requirements for the Gateway instance:

Note

The information here is **not** intended to replace the operating system documentation. For more information, see your operating system documentation.

Table 5: General Installation Information for Your Operating System

Operating System	Information
AIX	<p>Before you start the installation, make sure that you have read SAP Note 1972803.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on AIX</i> space on the SAP Community Network at http://scn.sap.com/community/aix.</p>
HP-UX	<p>Before you start the installation, make sure that you have read SAP Note 1075118.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on HP-UX Best Practices</i> space on the SAP Community Network at http://scn.sap.com/community/hp-ux.</p>
Linux	<p>Before you start the installation, make sure that you have read the SAP Notes for your Linux distribution listed in the central SAP Note 171356.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on Linux</i> space on the SAP Community Network at http://scn.sap.com/community/linux.</p>
Solaris	<p>Before you start the installation, make sure that you have read SAP Note 1669684.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on Oracle Solaris</i> space on the SAP Community Network at http://scn.sap.com/community/oracle-solaris.</p>
Linux for System z	<p>Before you start the installation, make sure that you have read SAP Note 81737.</p>

Table 6: Hardware Requirements

Requirement	Values and Activities
Processing units	<p>For application server instances and database instances: The number of physical or virtual processing units usable by the operating system image must be equal to or greater than 2.</p> <p>Examples of processing units are processor cores or hardware threads (multithreading).</p> <p>In a virtualized environment, ensure that adequate processor resources are available to support the workloads of the running SAP systems.</p>
Hard disk space	<ul style="list-style-type: none"> • General requirements: <ul style="list-style-type: none"> ○ 4.3 GB of temporary disk space for every required installation medium that you have to copy to a local hard disk. For more information, see Preparing the Installation Media [page 27]. ○ 1.2 GB of temporary disk space for the installation. ○ If an advanced disk array is available (for example, RAID), contact your hardware vendor to make sure that the data security requirements are covered by this technology. • Instance-specific requirements: <ul style="list-style-type: none"> ○ 1 GB of hard disk space.

Requirement	Values and Activities
RAM	<p>Only valid for 'Platform': AIX</p> <div style="background-color: #fff9c4; padding: 5px; border: 1px solid #ccc;"> <p>i Note</p> <p>Keep in mind that the operating system itself requires about 10% of the available RAM.</p> </div> <p>End of 'Platform': AIX</p> <p>1 GB RAM</p> <p>Only valid for 'Platform': HP-UX</p> <p>See SAP Note 1112627 for the commands to display the RAM size on HP-UX.</p> <p>End of 'Platform': HP-UX</p> <p>Only valid for 'Platform': Linux</p> <p>See SAP Note 1382721 for the commands to display the RAM size on Linux.</p> <p>End of 'Platform': Linux</p>
AIX: Paging space	<p>You need hard disk drives with sufficient paging space. Calculate the required paging space as follows:</p> <p>You need hard disk drives with sufficient paging space. You can calculate the required paging space as follows: 2* RAM, at least 20 GB</p>
HP-UX: Swap Space	<p>You need hard disk drives with sufficient space for swap. Calculate the required swap space as follows:</p> <p>For more information about HP-UX swap space recommendations and about how to set up swap space, see SAP Note 1112627.</p> <p>2 * RAM, at least 20 GB</p>
Linux: Swap Space	<p>You need hard disk drives with sufficient space for swap. Calculate the required swap space as follows:</p> <p>2 * RAM, at least 20 GB</p> <p>We recommend that you use the amount of swap space as described in SAP Note 1597355. You might decide to use more or less swap space based on your individual system configuration and your own experience during daily usage of the SAP system.</p>
Solaris: Swap Space	<p>You need hard disk drives with sufficient space for swap:</p> <p>At least 20 GB are required. For more information, see SAP Note 570375.</p>

Table 7: Software Requirements

Requirement	Values and Activities
AIX: Operating System Version	<p>Check the Product Availability Matrix (PAM) at http://support.sap.com/pam for supported operating system versions.</p> <p>Contact your OS vendor for the latest OS patches.</p> <p>Minimal OS requirements for the specific SAP Kernel releases are listed in SAP Note 1780629.</p> <p>Minimal OS requirements for the installer are listed in SAP Note 1704753.</p>
HP-UX: Operating System Version	<p>Check the Product Availability Matrix (PAM) at http://support.sap.com/pam for supported operating system versions.</p> <p>To check the operating system version on your installation hosts, use the following command:</p> <pre>uname -r</pre> <p>See SAP Note 939891 for information about support time frames of HP-UX.</p>
Linux: Operating System Version	<p>Check the Product Availability Matrix (PAM) at http://support.sap.com/pam for supported operating system versions.</p> <p>Contact your OS vendor for the latest OS patches.</p> <p>To check the operating system version on your installation hosts, use the following command:</p> <pre>cat /etc/*-release</pre>
Solaris: Operating System Version	<p>Check the Product Availability Matrix (PAM) at http://support.sap.com/pam for supported operating system versions.</p> <p>To check the operating system version on your installation hosts, use the following command:</p> <pre>/bin/uname -r</pre>
HP-UX: OS Patches	<p>Contact your OS vendor for the latest OS patches.</p> <p>To check the minimum required OS patches, see SAP Note 837670.</p> <p>SAP only supports the use of native binaries. Always use the appropriate SAP binaries for your processor.</p>
Solaris: OS Patches	<p>Contact your OS vendor for the latest OS patches.</p> <p>Check the relevant SAP Note for required Solaris patches:</p> <ul style="list-style-type: none"> • Oracle Solaris 10 on x64: SAP Note 908334 • Oracle Solaris 11: SAP Note 1797712
AIX: Kernel Parameters	

Requirement	Values and Activities
HP-UX: Kernel Parameters	<p>To run an SAP system, make sure that you check and, if necessary, modify the HP-UX kernel.</p> <div data-bbox="593 450 1388 609" style="background-color: #fff9c4; padding: 10px;"> <p>⚠ Caution</p> <p>We recommend that a UNIX system administrator performs all kernel modifications.</p> </div> <p>Proceed as follows:</p> <ol style="list-style-type: none"> 1. Check SAP Note 172747 for recommendations on current HP-UX kernel parameters. <div data-bbox="593 759 1388 1037" style="background-color: #fff9c4; padding: 10px;"> <p>⚠ Caution</p> <p>If a kernel value is already larger than the one suggested in the SAP Note, do not automatically reduce it to match the SAP requirement.</p> <p>You have to analyze the exact meaning of such a parameter and, if required, to reduce the parameter value. In some cases this might improve the performance of your SAP applications.</p> </div> <ol style="list-style-type: none"> 2. If necessary, modify the kernel parameters in one of the following ways: <ul style="list-style-type: none"> ○ Manually, as described in SAP Note 172747. ○ Interactively, using the HP-UX System Administrator Manager (SAM) or System Management Homepage (SMH).
Linux: Kernel Parameters	<p>Check SAP Note 2369910 for Linux kernel versions certified by SAP.</p> <p>To check the Linux kernel parameters for your Linux distribution, see one of the following SAP Notes:</p> <ul style="list-style-type: none"> • RHEL6: SAP Note 1496410 • RHEL7: SAP Note 2002167 • SLES 11: SAP Note 1310037 • SLES 12: SAP Note 1984787
Solaris: Kernel Parameters	<p>To run an SAP system, you must check and, if necessary, modify the Solaris kernel parameters or resource controls.</p> <div data-bbox="593 1632 1388 1792" style="background-color: #fff9c4; padding: 10px;"> <p>➔ Recommendation</p> <p>We recommend that a UNIX system administrator performs all kernel modifications.</p> </div> <p>For more information about current Solaris kernel parameters and about how to modify them, see the relevant SAP Note:</p> <ul style="list-style-type: none"> • Oracle Solaris 10: SAP Note 724713 • Oracle Solaris 11: SAP Note 1797712

Requirement	Values and Activities
AIX: National Language Support (NLS)	Make sure that National Language Support (NLS) and corresponding <code>locales</code> are installed.
HP-UX: National Language Support (NLS)	<p>Make sure that National Language Support (NLS) and corresponding <code>locales</code> are installed.</p> <p>You can check this as follows:</p> <ul style="list-style-type: none"> Enter the following commands to check whether National Language Support (NLS) is installed: <code>swlist -v grep -i nls</code> The output should contain the string <code>NLS-AUX ...</code> Enter the following commands to check which locales are available: <code>locale -a</code> The following files must be available: <code>de_DE.iso88591, en_US.iso88591</code>.
Linux: National Language Support (NLS)	<p>Make sure that National Language Support (NLS) and corresponding <code>locales</code> are installed.</p> <p>You can check this as follows:</p> <ul style="list-style-type: none"> Ensure that the required <code>locales</code> such as the following are available: <code>de_DE, en_US</code> Check SAP Note 187864 for information about corrected operating system locales and SAP <code>blended Code Pages</code>.
Solaris: National Language Support (NLS)	<p>Make sure that National Language Support (NLS) and corresponding <code>locales</code> are installed.</p> <p>Enter the following command to check which locales are available: <code>locale -a</code></p> <p>The following locale must be available: <code>en_US.ISO8859-1</code></p>
System Language	For the installation, you must choose English as the operating system language on all hosts that run SAP software.
Linux: Activated Hardware Drivers	To check the activated hardware drivers, enter the following command: <code>lsmod</code>

Table 8: Other Requirements

Requirement	Values and Activities
Minimum Web Browser	<p>Make sure that you have at least one of the following web browsers installed on the host where you run the installer GUI:</p> <ul style="list-style-type: none"> • Internet Explorer 9.0 or higher • Mozilla Firefox • Google Chrome <p>You need this to be able to display the Evaluation Form and send it to SAP.</p>
AIX: Additional Software	<p>Make sure that the following additional file sets are installed:</p> <ul style="list-style-type: none"> • <code>bos.adt</code> – Base Application Development • <code>bos.perf</code> – performance and diagnostics tools • <code>perfagent.tools</code> – performance monitoring tools • <code>bos.perf.libperfstat</code> – Performance Statistics Library
Host Name	<p>To find out physical host names, open a command prompt and enter <code>hostname</code>.</p> <p>For more information about the allowed host name length and characters allowed for SAP system instance hosts, see SAP Note 611361.</p> <p>Only valid for 'Platform': HP-UX</p> <p>For HP-UX, see SAP Note 1503149 in addition.</p> <p>End of 'Platform': HP-UX</p> <p>If you want to use virtual host names, see SAP Note 962955.</p>
Login Shell	<p>The installer only prompts you for this parameter if you use a login shell other than the recommended C shell (csh).</p> <p>For more information, see SAP Note 202227.</p> <p>Only valid for 'Platform': HP-UX</p> <p>For HP-UX, see SAP Note 1038842 in addition.</p> <p>End of 'Platform': HP-UX</p> <p>SAP Host Agent installation:</p> <ul style="list-style-type: none"> • Make sure that <code>/bin/false</code> can be used as a login shell. • Only valid for 'Platform': AIX AIX only: Add <code>/bin/false</code> to the list of valid login shells (attribute <code>shells</code>) in <code>/etc/security/login.cfg</code>. <p>End of 'Platform': AIX</p>
HP-UX: Mount and file system configuration	<p>For recommendations about block size and mount option configuration, see SAP Note 1077887.</p>
Shared file systems for decentralized systems	<p>If application servers are installed decentralized, then a "shared" file system must be installed, for example Network File System (NFS).</p>

Requirement	Values and Activities
AIX: C++ Runtime Environment	Minimal C++ runtime requirements for the specific SAP Kernel releases are listed in SAP Note 1780629 .
Linux: C compiler	Make sure that the C compiler <code>gcc</code> is installed.

2.2 Basic Installation Parameters

The tables below list the basic system parameters that you need to determine before you start the installation. For all other SAP system parameters, use the F1 help in the installer screens.

Table 9:

Parameters	Description
File system for the home directory user	<p><code>/home/<User_Name></code></p> <p>i Note</p> <p><code>/home/</code> is only a recommendation.</p>
SAP system mount directory	<p><code>/<sapmnt></code> is the base directory for the SAP system.</p> <p>For <code>/<sapmnt></code> you can use a directory of your choice.</p> <p>Do not add <code><SAPSID></code> as subdirectory because the system adds this directory automatically.</p> <p>Example</p> <p>If you enter <code>/<sapmnt></code>, the system creates the directory <code>/<sapmnt>/<SAPSID></code>.</p>

Parameters	Description
SAP System ID <SAPSID>	<p>The SAP System ID <SAPSID> identifies the whole SAP system.</p> <div data-bbox="609 421 1388 577" style="background-color: #fff9c4; padding: 5px;"> <p>⚠ Caution</p> <p>Choose your SAP system ID carefully. You cannot change the SAP system ID after the installation.</p> </div> <p>Make sure that your SAP system ID:</p> <ul style="list-style-type: none"> • Consists of exactly three alphanumeric characters • Contains only uppercase letters • Has a letter for the first character • Does not include any of the reserved IDs listed in SAP Note 1979280. <div data-bbox="609 810 1388 1003" style="background-color: #fff9c4; padding: 5px;"> <p>⚠ Caution</p> <p>You must choose an SAP system ID that is different from the SAP system ID of the central instance of the SAP system for which you want to use the standalone Gateway.</p> </div>
Instance Number	<p>Instance Number:</p> <p>Technical identifier for internal processes. Consists of a two-digit number from 00 to 98. The instance number must be unique on a host. That is, if more than one SAP instance is running on the same host, these instances must be assigned different numbers.</p> <div data-bbox="609 1236 1388 1263" style="border: 1px solid green; padding: 2px;"> <p>Only valid for 'Platform': HP-UX</p> </div> <div data-bbox="609 1281 1388 1706" style="background-color: #fff9c4; padding: 5px;"> <p>⚠ Caution</p> <p>Do not use 02, 75 for the instance number because:</p> <ul style="list-style-type: none"> • 02 is used to determine the port number for report <code>RSLGCOLL</code>, which is <code>14<Instance_Number></code> by default. The port 1402 however is already used by the OS process <code>rstlisten</code>. If you decide to use 02 as the instance number anyway, the instance fails to start during the installation process. You then have to change the port number for report <code>RSLGCOLL</code> manually to continue with the installation. • 75 is already used by the operating system. For more information, see SAP Note 29972. </div> <div data-bbox="609 1720 1388 1747" style="border: 1px solid green; padding: 2px;"> <p>End of 'Platform': HP-UX</p> </div>
Operating System (OS) User	<p>The installer will create the operating system user <code><sapsid>adm</code> automatically unless you created it manually before starting the installer (see Creating Operating System Users and Groups [page 19]).</p> <p>The installer prompts you to assign a password during the input phase of the installation.</p>

3 Preparation

3.1 Creating Operating System Users and Groups

During the installation, the installer checks all required accounts (users, groups) and services on the local machine. The installer checks whether the required users and groups already exist. If not, it creates new users and groups as necessary.

The `sapinst_instdir` directory belongs to a group named `sapinst`. If this group is not available, it is created automatically as a local group.

If you do not want the installer to create operating systems users, groups, and services automatically, you can optionally create them **before** the installation. This might be the case if you use central user management such as Network Information System (NIS).

The installer checks whether the required services are available on the host and creates them if necessary. See the log messages about the service entries and adapt the network-wide (NIS) entries accordingly.

The installer checks the NIS users, groups, and services using NIS commands. However, the installer does **not** change NIS configurations.

If you want to use global accounts that are configured on a separate host, you can do this in one of the following ways:

- You start the installer and choose **>> <Product> > Software Life-Cycle Options > Additional Preparation Options > Operating System Users and Groups >**.
For more information, see [Running the Installer \[page 34\]](#).
- You create operating system users and groups manually. Check the settings for these operating system users.

User Settings

- Only valid for 'Platform': Oracle Solaris
If your operating system is Oracle Solaris 10 or higher, follow the parameter recommendations for SAP applications in SAP Note [724713](#).

End of 'Platform': Oracle Solaris

- You have to set the limits for operating system users as follows:

Table 10:

Operating System	Action
AIX	Proceed as described in SAP Note 323816 .

Operating System	Action
HP-UX	Check the output of command <code>limit</code> (if you use <code>csh</code> shell) or <code>ulimit -a</code> (if you use <code>sh</code> or <code>ksh</code> shell) according to section OS Dependencies > All Operating Systems of SAP Note 1704753 .
Linux	Check the output of command <code>limit</code> (if you use <code>csh</code> shell) or <code>ulimit -a</code> (if you use <code>sh</code> or <code>ksh</code> shell) according to section OS Dependencies > All Operating Systems of SAP Note 1704753 .
Solaris	Check the output of command <code>limit</code> (if you use <code>csh</code> shell) or <code>ulimit -a</code> (if you use <code>sh</code> or <code>ksh</code> shell) according to section OS Dependencies > All Operating Systems of SAP Note 1704753 .

- All users **must** have identical environment settings. You make any change to the environment – such as variables, or paths – at your own responsibility.
- Do **not** delete any shell initialization scripts in the home directory of the OS users. This applies even if you do not intend to use the shells that these scripts are for.
- If operating system users already exist, make sure that they are assigned to group `sapinst`.
- If you create operating system users manually or use already existing operating system users, make sure that the home directory for each of these users is **not** the `root` directory (`/`).
- Make sure that the home directory of user `<sapsid>adm` is not critical for recursive changes on permissions:
When operating system users are created by the installer, the permissions on the home directories of these users are changed recursively. This can cause unpredictable errors if you define a critical home directory.
For example, the home directory must **not** be `/` or `/usr/sap`.

Operating System Users and Groups

The installer chooses available operating system user IDs and group IDs.

If you have multiple operating system users with user ID (UID) 0, you must assign the `sapinst` group to all of them.

➔ Recommendation

For security reasons, SAP recommends you to remove the `sapinst` group from the group set of the operating system users **after** you have completed the installation of your SAP system. .

Table 11: Users and Their Groups

User	Primary Group	Secondary Groups
<code><sapsid>adm</code>	<code>sapsys</code>	<code>sapinst</code>
<code>root</code>	<code>sapsys</code>	<code>sapinst</code>

Table 12: Groups and Members

Groups	Members
sapsys	<ul style="list-style-type: none"> • <sapsid>adm • root
sapinst	<ul style="list-style-type: none"> • <sapsid>adm • root

Table 13: Users and Groups

User	Primary Group	Additional Group	Description
root	None	sapinst	Superuser of the UNIX operating system
<sapsid>adm	sapsys	sapinst	SAP system administrator
sqd<dbid>	sapsys	sapinst, sdba	Owner of database instance <DBSID>
sdb	sdba		Database software owner

Table 14: Groups and Members

Groups	Members
sapsys	<sapsid>adm, sqd<dbid>
sapinst	root, <sapsid>adm, sqd<dbid>
sdba	sqd<dbid>, sdb

Table 15: Users and Groups

User	Primary Group
UNIX superuser root	No primary group assigned by the installer (group sapinst is assigned as secondary group)
SAP system administrator <sapsid>adm	sapsys (db<dbid>ctl as secondary group)
db2<dbid>	db<dbid>adm
<p>i Note Only used on the database host.</p>	

Table 16: Groups and Members

Groups	Members
sapsys	<sapsid>adm
db<dbsid>ctl	<sapsid>adm
db<dbsid>adm	db2<dbsid>
db<dbsid>mon	

Table 17: SAP System Users and Groups

User	Primary Group	Additional Groups	Comment
root	No primary group assigned by the installer.	sapinst	Superuser of the UNIX operating system
<sapsid>adm	sapsys	oper, dba, sapinst The following groups are always required for Oracle 12, but for Oracle 11 only if you want to use Oracle ASM: asmoper, asmdba	SAP system administrator and for Oracle 12 the default database administrator
ora<dbsid>	dba	oper, sapinst, oinstall	Database administrator This user is only required on the host where the database instance runs.
oracle	dba	oper, sapinst, asmoper, asmadmin, asmdba, oinstall	Oracle Software Owner and database administrator This user is only required on the host where the database instance runs. This user is only required for Oracle 12 or Oracle 11 with ASM/Exadata .

Table 18: SAP System Groups and Members

Groups	Members
sapsys	<sapsid>adm
oper	<sapsid>adm, ora<dbsid>, oracle (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM)

Groups	Members
dba	<sapsid>adm, ora<dbSID>, oracle (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM)
sapinst	root, <sapsid>adm, ora<dbSID>, oracle (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM)
asmoper	<sapsid>adm (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM), oracle
asmadmin	oracle (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM)
asmdba	<sapsid>adm (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM), oracle
oinstall (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM)	oracle (always required for Oracle 12; for Oracle 11 only required if you want to use Oracle ASM), ora<dbSID>

Table 19: Users and Groups

User:	Primary Group:
UNIX superuser root	No primary group assigned by SAPinst (group <i>sapinst</i> is assigned as secondary group).
SAP system administrator <sapsid>adm	<i>sapsys</i> (<i>sapinst</i> as secondary group)
syb<dbSID>	<i>sapsys</i> (<i>sapinst</i> as secondary group)
<p>i Note Only used on the database host.</p>	

Table 20: Groups and Members of the SAP Host Agent User

Groups	Members
sapsys	sapadm
sapinst	sapadm

Table 21: Users and Groups

User	Primary Group	Additional Groups	Comment
root	No primary group assigned by the installer	sapinst	Superuser of the UNIX operating system

User	Primary Group	Additional Groups	Comment
<sapsid>adm	sapsys	sapinst	SAP system administrator

Table 22: Groups and Members

Groups	Members
--------	---------

3.2 SAP Directories

The installer automatically creates the directories listed in the following figures and tables.

Before running the installation, you have to set up the required file systems manually. In addition, you have to make sure that the required disk space for the directories to be installed is available on the relevant hard disks.

The figure below assumes that you have set up one file system for the SAP system mount directory <sapmnt> and one file system for the /usr/sap directory. However, you have to decide for which directories you want to set up separate file systems. If you do not set up any file system on your installation host, the installer creates all directories in the root directory /.

The installer prompts you only for the <sapmnt> directory during the installation. See also [Basic SAP System Parameters \[page 17\]](#).

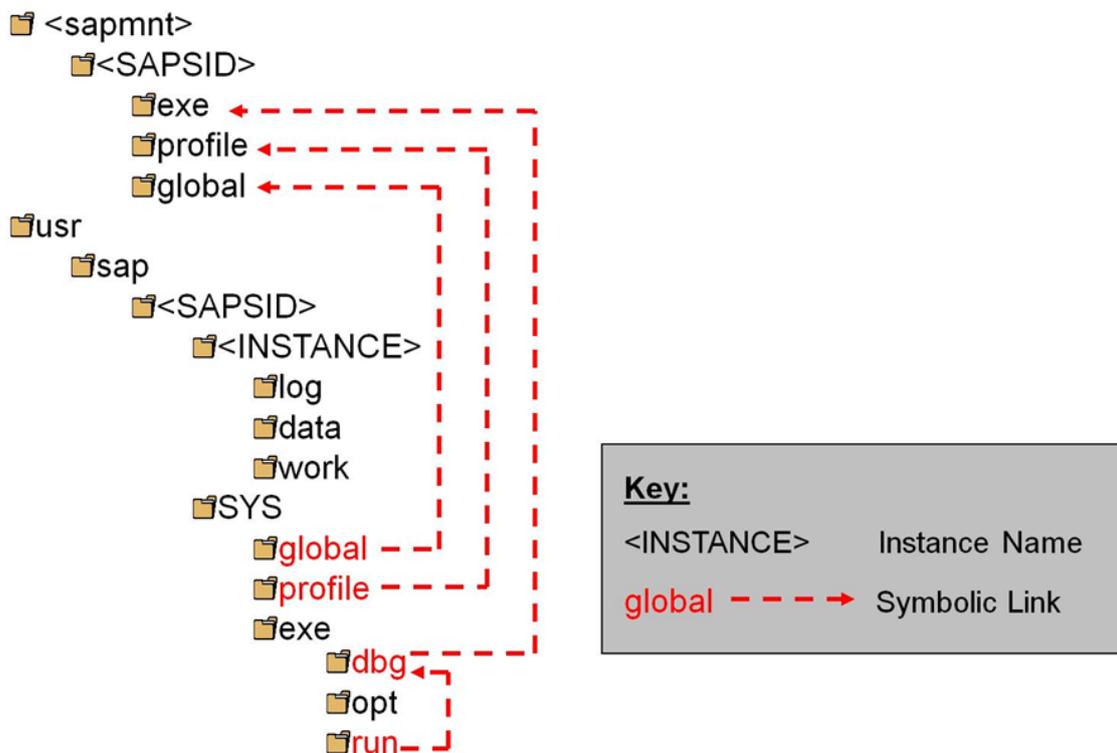


Figure 1:

The instance name (<INSTANCE>) of the Gateway instance is G<Instance_Number>, for example G00.

SAP Directories in Detail

i Note

The listed space requirements are initial SAP requirements.

Depending on your operating system, you might also have to add space for administrative purposes.

Table 23:

Directory Name	Description	Space Required
<code>/<sapmnt>/<SAPSID></code>	<p>The default name for the SAP system mount directory is <code>sapmnt</code>.</p> <ul style="list-style-type: none"> <code>exe</code> Contains executable kernel programs <code>global</code> Contains log files <code>profile</code> Contains the start and operations profiles of all instances 	<p>400 MB</p> <p>Only valid for 'OS Family':</p> <p>650 MB</p> <p>End of 'OS Family':</p>
<code>/usr/sap/<SAPSID></code>	<p>There are subdirectories of <code>/usr/sap/<SAPSID>/SYS</code> with symbolic links to subdirectories of <code>/<sapmnt>/<SAPSID></code>:</p>	<p>1 MB</p> <p>Only valid for 'OS Family':</p> <p>15 MB</p> <p>End of 'OS Family':</p>

3.3 Using Virtual Host Names

You can use one or more virtual TCP/IP host names for SAP servers within an SAP server landscape to hide their physical network identities from each other. This can be useful when quickly moving SAP servers or complete server landscapes to alternative hardware without having to reinstall or reconfigure.

Prerequisites

Make sure that the virtual host name can be correctly resolved in your Domain Name System (DNS) setup.

Procedure

Proceed as described in SAP Note [962955](#).

3.4 Preparing the Installation Media

This section describes how to prepare the installation media.

Installation media are available as follows:

- The Software Provisioning Manager 1.0 archive containing the installer.
You always have to download the latest version of the Software Provisioning Manager 1.0 archive.
- The media containing the software to be installed, which are available as follows:
 - You normally obtain the physical installation media as part of the installation package.
 - You can also download the installation media apart from the Software Provisioning Manager 1.0 archive from SAP Service Marketplace, as described at the end of this section.

Related Information

[Downloading the Software Provisioning Manager Archive \[page 27\]](#)

[Downloading Installation Media \[page 30\]](#)

[Using the Physical Media from the Installation Package \[page 29\]](#)

3.4.1 Downloading the Software Provisioning Manager Archive

You always have to download and unpack the Software Provisioning Manager 1.0 archive (70SWPM10SP<Support_Package_Number>_<Version_Number>.SAR) from the SAP Software Download Center because you must use the latest version.

Prerequisites

Make sure the latest version of the `SAPCAR` archiving tool is available on each installation host.

You require the `SAPCAR` archiving tool to be able to unpack software component archives (*.SAR files), which is the format of software lifecycle media and tools that you can download from the SAP Software Download Center.

If required, you can download the latest version of `SAPCAR` from:

<http://support.sap.com/swdc>  [Software Downloads](#)  [SUPPORT PACKAGES & PATCHES](#)  [By Alphabetical Index \(A-Z\)](#)  [S](#)  [SAPCAR](#) .

For more information about `SAPCAR`, see SAP Note [212876](#) .

Procedure

1. Download the latest version of the Software Provisioning Manager 1.0 archive
70SWPM10SP<Support_Package_Number>_<Version_Number>.SAR from:

<http://support.sap.com/swdc>  Software Downloads  SUPPORT PACKAGES & PATCHES  By Alphabetical Index (A-Z)  S  SOFTWARE PROVISIONING MANAGER 

Note

If you have an operating system version that has been initially released with SAP kernel 7.2<X> but is no longer supported for SAP kernel 7.21 or 7.22, instead of the 70SWPM* .SAR archive you must download the RMOS70SWPM* .SAR archive for these outdated operating system versions. For more information, see [About Software Provisioning Manager \[page 6\]](#).

2. If you want to verify the signature of the
70SWPM10SP<Support_Package_Number>_<Version_Number>.SAR archive, execute the following commands :

Note

In addition, check SAP Note [1680045](#)  whether additional information is available.

```
/<Path to SAPCAR>/sapcar -tVvf <Path to Temporary Directory>/  
70SWPM10SP<Support_Package_Number>_<Version_Number>.SAR
```

3. Unpack the Software Provisioning Manager archive to a local directory using the following command:

```
/<Path to SAPCAR>/sapcar -xvf <Path to Temporary Directory>/  
70SWPM10SP<Support_Package_Number>_<Version_Number>.SAR
```

Note

Make sure that all users have read permissions for the directory where you want to unpack the installer.

Caution

Make sure that you unpack the Software Provisioning Manager archive to a dedicated folder. Do not unpack it to the same folder as other installation media.

3.4.2 Using the Physical Media from the Installation Package

This section describes how you use the physical installation media as part of the installation package.

Procedure

1. Identify the required media for your installation as listed below.

Note

For more information about which kernel version to use, see SAP Note [1680045](#). In addition, check the Product Availability Matrix at <http://support.sap.com/pam>.

The following table shows the media required for the installation of a standalone Gateway instance:

Table 24:

Installation Media	Description
Software Provisioning Manager 1.0	Software provisioning manager 1.0 archive 70SWPM10SP<Support_Package_Number>_<Version_Number>. SAR
SAP Kernel	Non-Unicode (NUC) Kernel (folder K_<Version>_N_<OS>) where N means "non-Unicode".

2. Make the installation media available on the installation host as follows:
 - a. Download and unpack the latest version of Software Provisioning Manager as described in [Downloading the Software Provisioning Manager Archive \[page 27\]](#).
 - b. Make the installation media containing the software to be installed available.

Caution

- Mount the media locally. We do **not** recommend you to use Network File System (NFS), because reading from media mounted with NFS might fail.
- If you copy the media to disk, make sure that the paths to the destination location of the copied media do not contain any blanks and commas.
- If you perform a local installation and there is only one media drive available on your installation host, you must copy at least the Installation Master medium to the local file system.

3.4.3 Downloading Installation Media

This section describes how you download installation media from the SAP Software Download Center.

Procedure

1. Download and unpack the latest version of Software Provisioning Manager as described in [Downloading the Software Provisioning Manager Archive \[page 27\]](#).
2. Create a download directory on the host on which you want to run the installer.
3. Identify **all** download objects that belong to one installation medium according to the following criteria:

Note

Installation media might be split into several files. In this case, you have to reassemble the required files after the download.

- Download path or location:
You can download installation media from the SAP Software Download Center using one of the following paths:
 - <http://support.sap.com/swdc> > *Software Downloads* > *Installations & Upgrades* > *By Alphabetical Index (A-Z)* > *<First_Letter_Of_Product>* > *<Product_Version>*
 - <http://support.sap.com/swdc> > *Software Downloads* > *Installations & Upgrades* > *By Category* > *<Product>* > *<Product_Version>*
 - For downloading the kernel media, proceed as described in the *Kernel Media* section of SAP Note [1680045](#).
- Material number
All download objects that are part of an installation medium have the same material number and an individual sequence number:
<Material_Number>_<Sequence_Number>

Example

```
51031387_1
51031387_2
...
```

- Title
All objects that are part of a medium have the same title, such as *<Solution><Media_Name><OS>* or *<Database>RDBMS<OS>* for RDBMS media.
4. Download the objects to the download directory.
 5. To correctly recombine the media that are split into small parts, unpack all parts into the same directory.

In the unpacking directory, the system creates a subdirectory with a short text describing the medium and copies the data into it. The data is now all in the correct directory, the same as on the medium that was physically produced. For more information, see SAP Note [1258173](#).

 **Caution**

Make sure that you unpack each installation media to a separate folder. Do not unpack installation media to the same folder were you unpack the Software Provisioning Manager archive.

Related Information

[Downloading Installation Media \[page 30\]](#)

4 Installation

4.1 Prerequisites for Running the Installer

Make sure you fulfil the following prerequisites before running the installer:

- We recommend that you use the `cs` shell for the installation. If you want to use another shell, make sure that you have read SAP Note [202227](#).
The installer uses `cs` scripts during the installation to obtain the environment for user `<sapsid>adm`. This is also true if user `<sapsid>adm` already exists from an earlier SAP system installation, and the shell of this user is not `cs`. Before you start the installer, execute the following command as user `<sapsid>adm` to make sure that the `cs` scripts are up-to-date:
`/bin/csh -c "source /<home>/<sapsid>adm/.cshrc;env"`
- Make sure that you have specified the most important SAP system parameters as described in [Basic SAP System Installation Parameters \[page 17\]](#) **before** you start the installation.
- Check the value of the environment variable `TEMP`, `TMP`, or `TMPDIR`:

Table 25:

Shell Used	Command
Bourne shell (sh)	<code>TEMP=<Directory></code> <code>export TEMP</code>
C shell (csh)	<code>setenv TEMP <Directory></code>
Korn shell (ksh)	<code>export TEMP=<Directory></code>

- Make sure that your operating system does **not** delete the contents of the temporary directory `/tmp` or the contents of the directories to which the variable `TEMP`, `TMP`, or `TMPDIR` points – for example, by using a `crontab` entry.
 - Make sure that you have at least 60 MB of free space in the installer directory for each installer option. In addition, you need 200 MB free space for the installer executables. If you cannot provide 200 MB free space in the temporary directory, you can set one of the environment variables `TEMP`, `TMP`, or `TMPDIR` to another directory with 200 MB free space for the installer executables.
 - Make sure that the temporary directory has the permissions `777`.
- Make sure that your `DISPLAY` environment variable is set to `<Host_Name>:0.0`, where `<Host_Name>` is the host on which you want to display the GUI.

Table 26:

Shell Used	Command
Bourne shell (sh)	<code>DISPLAY=<host_name>:0.0</code> <code>export DISPLAY</code>
C shell (csh)	<code>setenv DISPLAY <host_name>:0.0</code>
Korn shell (ksh)	<code>export DISPLAY=<host_name>:0.0</code>

- Make sure that `umask` is set to **022** for the user with `root` permissions that you want to use for running the installer.
As this user, enter the following command: `umask 022`
- Make sure that the limits for the user with `root` permissions that you want to use for running the installer are set correctly:

Table 27:

Operating System	Action
AIX	Proceed as described in SAP Note 323816 .
HP-UX	Check the output of command <code>limit</code> (if you use <code>csh</code> shell) or <code>ulimit -a</code> (if you use <code>sh</code> or <code>ksh</code> shell) according to section OS Dependencies > All Operating Systems of SAP Note 1704753 .
Linux	Check the output of command <code>limit</code> (if you use <code>csh</code> shell) or <code>ulimit -a</code> (if you use <code>sh</code> or <code>ksh</code> shell) according to section OS Dependencies > All Operating Systems of SAP Note 1704753 .
Solaris	Check the output of command <code>limit</code> (if you use <code>csh</code> shell) or <code>ulimit -a</code> (if you use <code>sh</code> or <code>ksh</code> shell) according to section OS Dependencies > All Operating Systems of SAP Note 1704753 .

- Make sure that the following ports are not used by other processes:
 - Port 21212 is used by default for communication between the installer GUI server and the installer GUI client.
If this port cannot be used, you can assign a free port number by executing `sapinst` with the following command line parameter:
`SAPINST_DIALOG_PORT=<Port_Number>`
 - Port 4239 is used by default for displaying the feedback evaluation form at the end of the installer processing.
The filled-out evaluation form is then sent to SAP using HTTPS.
If this port cannot be used, you can assign a free port number by executing `sapinst` with the following command line parameter:
`SAPINST_HTTP_PORT=<Port_Number>`

4.2 Running the Installer

This section describes how to run the installation tool Software Provisioning Manager 1.0 (the “installer” for short).

Software Provisioning Manager 1.0 includes a GUI client and a GUI server, which both use Java. In the following, GUI client and GUI server are called the “installer GUI”. For more information about the installer, see [Useful Information About the Installer \[page 36\]](#).

This procedure describes an installation where the installer and the installer GUI are running on the same host.

If you need to see the installation on a remote display, we recommend that you [perform a remote installation \[page 39\]](#), where the installer GUI is running on a **separate** host from the installer.

Alternatively you can use an X server for Microsoft Windows or other remote desktop tools for remote access to the installer GUI on Windows workstations. For more information, see SAP Note [1170809](#).

Prerequisites

For more information, see [Prerequisites for Running the Installer \[page 32\]](#).

Procedure

1. Log on to the installation host as a user with `root` permissions.
2. Make the installation media available on the installation host.
For more information, see [Preparing the Installation Media \[page 27\]](#).

➔ Recommendation

Make the installation media **locally** available. For example, if you use Network File System (NFS), reading from media mounted with NFS might fail.

3. Start the installer from the directory to which you unpacked the Software Provisioning Manager archive by executing the following command: `/<Path_To_Unpack_Directory>/sapinst`

i Note

If you want to use a virtual host name, start the installer with the installer property `SAPINST_USE_HOSTNAME` as follows:

```
./sapinst SAPINST_USE_HOSTNAME=<Virtual_Host_Name>
```

For more information, see [Using Virtual Host Names \[page 26\]](#).

Caution

Make sure that the installation directory is not mounted with NFS, otherwise there might be problems when the Java Virtual Machine is started.

4. On the *Welcome* screen, choose the following options in the following sequence:
 - To install a new standalone Gateway instance, go to **▶ <Product> ▶** and choose: **▶ Standalone Engines ▶ Gateway ▶**
 - To rename an existing standalone Gateway instance, go to *System Rename* and choose: **▶ Distributed System ▶ System Rename for Gateway Instance ▶**
 - To uninstall an existing standalone Gateway instance, go to **▶ <Product> ▶ Software Life-Cycle Options ▶ Uninstall ▶** and choose: **▶ Uninstall - Systems / Standalone Engine / Optional Standalone Unit ▶**
5. Choose *Next*.
6. Follow the instructions on the installer input screens and enter the required parameters.

Note

For more information about the input parameters, position the cursor on the parameter and press **F1**.

After you have entered all requested input parameters, the installer displays the *Parameter Summary* screen. This screen shows both the parameters that you entered and those that the installer set by default. If required, you can revise the parameters before starting the installation.

7. To start the installation, choose *Start*.

The installer starts the installation and displays the progress of the installation. When the installation option has finished successfully, the installer displays the message *Execution of <Option Name> has completed*.
8. If required, delete directories with the name `sapinst_exe.xxxxxx.xxxx` after the installer has finished. Sometimes these remain in the temporary directory.

Note

If there are errors with the installer extraction process, you can find the log file `dev_selfex.out` in the temporary directory.

Recommendation

Keep all installation directories until you are sure that the system, including all instances, is completely and correctly installed. Once the system is completely and correctly installed, make a copy of the installation directories with all their contents. Save the copy to a physically separate medium, such as a medium or a USB drive that is separate from your installation hosts.

This might be useful for analyzing issues occurring later when you use the system. For security reasons, do **not** keep installation directories on installation hosts, but make sure that you delete them after saving them separately.

9. We recommend that you delete the directory `<user_home>/ .sdtgui`.
10. If you copied installation media to your hard disk, you can delete these files when the installation has successfully completed.
11. For security reasons, SAP recommends you to remove the `sapinst` group from the group set of the operating system users **after** you have completed the installation.

4.3 Additional Information About the Installer

The following sections provide additional information about the installer:

- [Useful Information About the Installer \[page 36\]](#)
- [Interrupted Installation \[page 37\]](#)
- [Performing a Remote Installation \[page 39\]](#)
- [Starting the Installer GUI Separately \[page 41\]](#)
- [Running the Installer with Accessibility Mode \[page 43\]](#)
- [Troubleshooting with the Installer \[page 44\]](#)

4.3.1 Useful Information About the Installer

This section contains some useful technical background information about the installer and the installer GUI.

- When you start the installer, it automatically starts the installer GUI.
- The installer creates the installation directory `sapinst_instdir` directly below the temporary directory. The installer finds the temporary directory by checking the value of the following environment variables in the following sequence: `TEMP`, `TMP`, and `TMPDIR`. If no value is set for these variables, the installer creates the installation directory `sapinst_instdir` directly below the `/tmp` directory by default. If you want the installer to create the installation directory `sapinst_instdir` in another directory, set the environment variable `TEMP` to this directory before you start the installer.

Table 31:

Shell Used	Command
Bourne shell (sh)	<code>TEMP=<Directory></code> <code>export TEMP</code>
C shell (csh)	<code>setenv TEMP <Directory></code>
Korn shell (ksh)	<code>export TEMP=<Directory></code>

Caution

Make sure that the installation directory is not mounted with NFS, or there might be problems when the Java Virtual Machine is started.

➔ Recommendation

We recommend that you keep all installation directories until the system is completely and correctly installed.

- For each installation option, the installer creates a subdirectory located in the `sapinst_instdir` directory.
- The installer extracts itself to a temporary directory called `sapinst_exe.xxxxxx.xxxx`, which is located in the environment variables `TEMP`, `TMP`, or `TMPDIR`. These files are deleted after the installer has stopped running.
The temporary directory `sapinst_exe.xxxxxx.xxxx` sometimes remains undeleted. You can safely delete it.
The temporary directory also contains the log file `dev_selfex.out` from the extraction process, which might be useful if an error occurs.

⚠ Caution

If the installer cannot find a temporary directory, the installation terminates with the error `FCO-00058`.

- To see a list of all available installer properties, start the installer as described above with command line parameter `-p`:
`./sapinst -p`.
- If you need to run the installer in accessibility mode, proceed as described in [Running the Installer in Accessibility Mode \[page 43\]](#).
- If required, you can stop the installer by choosing **SAPinst** > **Exit Process** in the installer GUI menu.

i Note

If you need to terminate the installer, press `Ctrl` + `C`.

- If you want to install an SAP system in unattended mode, see SAP Note [2230669](#) which describes an improved procedure using `infile.params`.

4.3.2 Interrupted Processing of the Installer

Use

The processing of the installer might be interrupted for one of the following reasons:

- An error occurred during the *Define Parameters* or *Execute* phase:
The installer does not abort the installation in error situations. If an error occurs, the installation pauses and a dialog box appears. The dialog box contains a short description of the choices listed in the table below as well as a path to a log file that contains detailed information about the error.
- You interrupted the installation by choosing *Exit Process* in the *SAPinst* menu.

Caution

If you stop an option in the *Execute* phase, any system or component **installed** by this option is incomplete and not ready to be used. Any system or component **uninstalled** by this option is not completely uninstalled.

The following table describes the options in the dialog box:

Table 32:

Option	Definition
<i>Retry</i>	<p>The installer retries the installation from the point of failure without repeating any of the previous steps.</p> <p>This is possible because the installer records the installation progress in the <code>keydb.xml</code> file.</p> <p>We recommend that you view the entries in the log files, try to solve the problem, and then choose <i>Retry</i>.</p> <p>If the same or a different error occurs, the installer displays the same dialog box again.</p>
<i>Stop</i>	<p>The installer stops the installation, closing the dialog box, the installer GUI, and the GUI server.</p> <p>The installer records the installation progress in the <code>keydb.xml</code> file. Therefore, you can continue the installation from the point of failure without repeating any of the previous steps (see the procedure below).</p>
<i>Continue</i>	<p>The installer continues the installation from the current point.</p>
<i>View Log</i>	<p>Access installation log files.</p>

Note

You can also terminate the installer by choosing `Ctrl` + `C` but we do **not** recommend this because it kills the process immediately.

Procedure

This procedure describes the steps to restart an installation, which you stopped by choosing *Stop*, or to continue an interrupted installation after an error.

1. Log on to the installation host as a user with the required permissions as described in [Running the Installer \[page 34\]](#).
2. Make sure that the installation media are still available on the installation host.
For more information, see [Preparing the Installation Media \[page 27\]](#).

➔ Recommendation

Make the installation media **locally** available. For example, if you use remote file shares on other Windows hosts, CIFS shares on third-party SMB-servers, or Network File System (NFS), reading from media mounted with NFS might fail.

3. Restart the installer from the directory to which you unpacked the Software Provisioning Manager archive.
4. Start the installer using the following command:
`./sapinst`
5. From the tree structure on the *Welcome* screen, select the installation option that you want to continue and choose *Next*.
The *What do you want to do?* screen appears.
6. On the *What do you want to do?* screen, decide between the following alternatives and continue with *Next*:

Table 33:

Alternative	Behavior
<i>Run a new option</i>	<p>The installer does not continue the interrupted installation option. Instead, it moves the content of the old installation directory and all installation-specific files to a backup directory. Afterwards, you can no longer continue the old installation option.</p> <p>The following naming convention is used for the backup directory:</p> <pre>log_<Day>_<Month>_<Year>_<Hours>_<Minutes>_<Seconds></pre> <div data-bbox="592 1122 1401 1249"><p> Example</p><pre>log_01_Oct_2008_13_47_56</pre></div> <div data-bbox="592 1261 1401 1464"><p> Caution</p><p>The installer moves all the files and folders to a new log directory, even if these files and folders are owned by other users. If there are any processes currently running on these files and folders, they might no longer function properly.</p></div>
<i>Continue with the old option</i>	The installer continues the interrupted installation option from the point of failure.

4.3.3 Performing a Remote Installation

You use this procedure to install your SAP system on a **remote** host. In this case, the installer runs on the **remote host**, and the installer GUI runs on the **local** host. The local host is the host from which you control the installation with the installer GUI. The installer GUI connects using a secure SSL connection to the installer.

If your security policy requires that the person performing the installation by running the installer GUI on the local host is not allowed to know `root` credentials on the remote host, you can specify another operating system user for authentication purposes. You do this using the `SAPINST_REMOTE_ACCESS_USER` parameter when starting the `sapinst` executable from the command line. You have to confirm that the user is a trusted one. For more information, see SAP Note [1745524](#).

Alternatively you can use an X server for Microsoft Windows or other remote desktop tools for remote access to the installer GUI on Windows workstations. For more information, see SAP Note [1170809](#).

Prerequisites

-
- Both computers are in the same network and can ping each other.
To test this:
 1. Log on to your remote host and enter the command `ping <Local_Host>`.
 2. Log on to the local host and enter the command `ping <Remote_Host>`.
- Make sure that the `sapinst` executable on the remote host and the `sapinstgui` executable on the local host have exactly the same version. You can check this by using the option `-sfxver` as described in the procedure below and in the procedure in [Starting the Installer GUI Separately \[page 41\]](#).
- If you need to specify another operating system user with the `SAPINST_REMOTE_ACCESS_USER` command line parameter, make sure that this user exists on the remote host.

Procedure

1. Log on as a user with `root` permissions.

Caution

Make sure that this user has not set any environment variables for a different SAP system or database.

2. Make the installation media available on the remote host.
For more information, see [Preparing the Installation Media \[page 27\]](#).

Recommendation

Make installation media **locally** available. For example, reading from media mounted with Network File System (NFS) might fail.

Only valid for 'Platform': Oracle Solaris

Note

If you mount installation media, make sure that you do this with option `nomapcase`.

End of 'Platform': Oracle Solaris

3. Check the version of the `sapinst` executable by entering the following commands:

```
cd <Path_To_Unpack_Directory>
./sapinst -sfxver
```

The version of the `sapinst` executable must be exactly the same as the version of the `sapinstgui` executable on the local host (see also [Starting the Installer GUI Separately \[page 41\]](#)).
4. Start the installer by executing the following commands:

```
cd <Path_To_Unpack_Directory>
```

```
./sapinst -nogui
```

i Note

If you need to specify another operating system user for authentication purposes, enter the following command:

```
<Path_To_Unpack_Directory>/sapinst -nogui  
SAPINST_REMOTE_ACCESS_USER=<Specified_OS_User>
```

i Note

If you want to use a virtual host name, start the installer with the installer property `SAPINST_USE_HOSTNAME` as follows:

```
./sapinst -nogui SAPINST_USE_HOSTNAME=<Virtual_Host_Name>
```

For more information, see [Using Virtual Host Names \[page 26\]](#).

The installer now starts and waits for the connection to the installer GUI. You see the following at the command prompt:

```
guiengine: no GUI connected; waiting for a connection on host <Host_Name>, port  
<Port_Number> to continue with the installation
```

5. Start the installer GUI on your **local** host as described in [Starting the Installer GUI Separately \[page 41\]](#).

4.3.4 Starting the Installer GUI Separately

You use this procedure to start the installer GUI separately.

You need to start the installer GUI separately in the following cases:

- You closed the installer GUI using **File > Close GUI only** from the installer menu while the installer is still running.
- You want to perform a remote installation, where the installer GUI runs on a different host from the installer. For more information, see [Performing a Remote Installation \[page 39\]](#).
- You want to run the installer in accessibility mode. In this case, you have to start the installer GUI separately on a Windows host as described below with the additional command line parameter **-accessible**. For more information, see [Running the Installer in Accessibility Mode \[page 43\]](#).

Prerequisites

- The host on which you want to start the installer GUI meets the prerequisites for starting the installer as described in [Prerequisites for Running the Installer \[page 32\]](#).

i Note

If you want to run the installer on a Windows host, make sure that you meet the prerequisites for the installer listed in the relevant Windows guide.

- Make sure that the `sapinst` executable on the remote host and the `sapinstgui` executable on the local host have exactly the same version. You can check this by using the option `-sfxver` as described in the procedure below and in the procedure in [Performing a Remote Installation \[page 39\]](#).

Procedure

In this procedure, the following variables are used: `<Remote_Host>` is the name of the remote host, and `<Port_Number_Gui_Server_To_Gui_Client>` is the port the GUI server uses to communicate with the GUI client (21212 by default).

i Note

If you want to run the installer GUI on a remote host, it is mandatory to start the installer using the `-nogui` property. If you have already started the installer without the `-nogui` property and want to run the GUI on a different host, you have to exit the installation process by choosing **SAPinst > Exit Process** and then follow the steps described in [Interrupted Installation \[page 37\]](#). Use the `-nogui` property to restart the installer and start the installer GUI on the intended host.

Starting the Installer GUI on Windows

1. Make the installer software available on the host on which you want to start the installer GUI. For more information, see [Preparing the Installation Media \[page 27\]](#).
2. Start the installer GUI by executing `<Drive>:\<Path_To_Unpack_Directory>\sapinstgui.exe` with the appropriate command line parameters:
 - If you want to perform a remote installation, proceed as follows:
 1. Check the version of `sapinstgui.exe` by entering the following command:
`sapinstgui.exe -sfxver`
 The version of the `sapinstgui` executable must be exactly the same as the version of the `sapinst` executable on the remote host (see also [Performing a Remote Installation \[page 39\]](#)).
 2. Start the installer GUI by entering the following command:
`sapinstgui.exe -host <Remote_Host> -port <Port_Number_Gui_Server_To_Gui_Client>`
 - If you closed the installer GUI using **File > Close GUI only** and want to reconnect to the installer, proceed as follows:
 - If you are performing a local installation with the installer and the installer GUI running on the same host, execute the following command:
`sapinstgui.exe -port <Port_Number_Gui_Server_To_Gui_Client>`
 - If you are performing a remote installation with the installer and the installer GUI running on different hosts, execute the following command:
`sapinstgui.exe -host <Remote_Host> -port <Port_Number_Gui_Server_To_Gui_Client>`
3. The installer GUI starts and connects to the installer.

Starting the Installer GUI on UNIX

1. Make the installer software available on the host on which you want to start the installer GUI. For more information, see [Preparing the Installation Media \[page 27\]](#).

2. Start the `sapinstgui` executable with the appropriate command line parameters:
 - If you want to perform a remote installation, proceed as follows:
 1. Check the version of the `sapinstgui` executable by entering the following command:
`<Path_To_Unpack_Directory>/sapinstgui -sfxver`
 The version of the `sapinstgui` executable must be exactly the same as the version of the `sapinst` executable on the remote host (see also [Performing a Remote Installation \[page 39\]](#)).
 2. Start the installer GUI by entering the following command:
`<Path_To_Unpack_Directory>/sapinstgui -host <Remote_Host> -port <Port_Number_Gui_Server_To_Gui_Client>`
 - If you closed the installer GUI using **File > Close GUI only** and want to reconnect to the installer, proceed as follows:
 - If you are performing a local installation with the installer and the installer GUI running on the same host, execute the following command:
`<Path_To_Unpack_Directory>/sapinstgui -port <Port_Number_Gui_Server_To_Gui_Client>`
 - If you are performing a remote installation with the installer and the installer GUI running on different hosts, execute the following command:
`<Path_To_Unpack_Directory>/sapinstgui -host <Remote_Host> -port <Port_Number_Gui_Server_To_Gui_Client>`
3. The installer GUI starts and connects to the installer.

4.3.5 Running the Installer in Accessibility Mode

Use

You can also run the installer in accessibility mode. The following features are available:

- Keyboard access:
This feature is generally available for all operating systems.
- High-contrast color:
This feature is derived from the Windows display properties. Therefore, to enable this feature, perform a remote installation with the installer GUI running on a Windows host.
- Custom font setting:
This feature is derived from the Windows display properties. Therefore, to enable this feature, perform a remote installation with the installer GUI running on a Windows host.

Procedure

Activating and Adjusting Accessibility Settings on Windows

You first have to activate and adjust the relevant settings for the font size and color schemes **before** you start the installer or the installer GUI.

i Note

The following procedure applies for Windows Server 2012 and might be different when using another Windows operating system.

1. Right click on your Windows desktop and choose *Personalize*.
2. Select *Adjust font size (DPI)* and choose *Larger scale (120 DPI)*.
To define other font size schemes, choose *Custom DPI*.
3. In the right-hand pane, select *Window Color and Appearance*.
Select a color scheme from the *Color scheme* drop-down box.
To define your own color schemes, choose *Advanced*.

Running the Installer in Accessibility Mode

You perform a remote installation as follows:

1. Start the installer on the remote host by executing the following command from the command line as described in [Performing a Remote Installation \[page 39\]](#):
`./sapinst -nogui`
2. Start the installer GUI on a local Windows host by executing the following command from the command line as described in [Starting the Installer GUI Separately \[page 41\]](#):
`sapinstgui.exe -accessible -host <Remote_Host> -port <Port_Number_Gui_Server_To_Gui_Client>`

4.3.6 Troubleshooting with the Installer

This section tells you how to proceed when errors occur during the processing of the installer.

If an error occurs, the installer does one of the following:

- It stops processing
- It displays a dialog informing you about the error

Procedure

1. Check SAP Note [1548438](#) for known installer issues.
2. To view the log file, choose [View Logs](#).
3. If an error occurs during the *Define Parameters* or *Execute* phase, do one of the following:
 - Try to solve the problem
 - Stop the installer by choosing *Stop* from the error message or  *SAPinst*  *Exit Process* in the tool menu.
For more information, see [Interrupted Installation \[page 37\]](#).After resolving the problem, you can continue the processing of the installer by choosing *Retry*.
4. Check the log and trace files of the GUI server and the installer GUI in the directory `<User_Home>/ .sdtgui/` for errors.
 - If the installer GUI does not start, check the file `sdtstart.err` in the current `<User_Home>` directory.

-
- If you use an X Server for Microsoft Windows or other remote desktop tools for the Remote Access of the installer GUI on Windows Workstations and you experience display problems such as missing repaints or refreshes, contact your X Server vendor. The vendor can give you information about whether this X Server supports Java Swing-based GUIs and also tell you about further requirements and restrictions. For more information, see SAP Note [1170809](#).
5. If you cannot resolve the problem, create a customer message using component BC-INS. For more information about using subcomponents of BC-INS, see SAP Note [1669327](#).

5 Post-Installation Activities

5.1 SAP Gateway Configuration

You have to configure SAP Gateway to be able to use it.

You find the configuration documentation in the [SAP Library \[page 8\]](#) at: ▶ *Application Platform by Key Capability* ▶ *Platform-Wide Services* ▶ *Connectivity* ▶ *SAP Gateway* ▶

6 Additional Information

6.1 Using Virtual Host Names

You can use one or more virtual TCP/IP host names for SAP servers within an SAP server landscape to hide their physical network identities from each other. This can be useful when quickly moving SAP servers or complete server landscapes to alternative hardware without having to reinstall or reconfigure.

Prerequisites

Make sure that the virtual host name can be correctly resolved in your Domain Name System (DNS) setup.

Procedure

Proceed as described in SAP Note [962955](#).

6.2 Setting Up File Systems for HP-UX

This topic is only valid for 'Platform': HP-UX

Use

Here you can find information about how to set up file systems for HP-UX.

Using a Logical Volume Manager (LVM) lets you distribute logical volumes across several disks or LUNs (physical volumes). The individual logical volumes are grouped together into volume groups.

HP-UX 11.31 (11i v3) introduces a new agile addressing scheme for mass storage devices, with opaque minor numbers, persistent device special files (DSFs), and new hardware path types and formats. The addressing scheme used in previous HP-UX releases – called “legacy addressing” – coexists with this new scheme to ensure backward compatibility. The legacy addressing is to be deprecated in a future HP-UX release.

For more information, check the document *HP-UX 11i v3 Mass Storage Device Naming* at the HP Manuals *Business Support Center* website.

Procedure

i Note

Consider the SAP recommendations for data security when planning the distribution of data in LVM.

For recommendations about block size and mount option configuration, see SAP Note [1077887](#).

You can create file systems in one of the following ways:

- Manually, as described below in “Setting up File Systems Manually Using LVM”.
- Using the interactive tools SAM or SMH. See Table 2-4 in the document *SAM-HP SMH Cross Reference Guide HP-UX 11i* at the HP Manuals Business Support Center website.

Setting up File Systems Manually Using LVM

1. Examine the device configuration:
 - The `ioscan` command provides the device file name and the hardware addresses of all available devices, using the device class disk:
 - For persistent device files, enter:
`ioscan -m lun`
 - For legacy device files, enter:
`ioscan -f -C disk`
 - To show the mapping of the legacy device files and the persistent device files, enter:
`ioscan -m dsf`
 - Device file name format:
 - Persistent device filenames have the following format:
`/dev/disk/disk<number>`

+ Example

```
/dev/disk/disk6 (block device)
```

```
/dev/rdisk/disk6 (raw device)
```

- Legacy device filenames have the following format:
`/dev/dsk/c<number>t<number>d<number>`

+ Example

```
/dev/dsk/c2t5d0 (block device)
```

```
/dev/rdsk/c2t5d0 (raw device)
```

- The following command scans all disks for the current LVM:
`vgscan -pv`

i Note

Make sure that you use option `-p` (preview), otherwise `/etc/lvmtab` is updated.

2. You can determine disk or LUN size using the following command:

```
diskinfo /dev/rdisk/<raw device file name>
```

3. Prepare disks for LVM using the following command:
`pvcreate /dev/rdisk/<diskdevice>`
4. Create one or more volume group directories <VG Name> and group device files. For each volume group in the system, there must be a volume group directory that has a character device file named `group` in it. Execute the following commands:
`mkdir /dev/<VG Name>`
`mknod /dev/<VG Name>/group c 64 0x<nn>000`
5. Create the volume group by specifying which physical volumes (disks or LUNs) belong to the group:
`vgcreate /dev/<VG Name> /dev/disk/<diskdevice>`

Note

For large disk sizes and large numbers of disks, you might need to increase the volume group physical extent (PE) size with the `-s` option and the maximum physical volume option `-p`.

Proceed as follows to add other disks or LUNs to an existing volume group:

`vgextend /dev/<VG Name> <block device file name>`

6. To check the size and number of physical volumes or disks in a volume group, use the following command:
`vgdisplay -v /dev/<VG Name>`
7. Create one logical volume for each file system as follows:
 1. Enter the following command:
`lvcreate /dev/<VG Name>`
 2. Allocate the required logical volume size to disks or LUNs as follows:
`lvextend -L <size in MB> /dev/<VGName>/<LVName> <block device filename>`
`<size in MB>` needs to be a multiple of the physical extent size, otherwise the size is rounded up. You can determine the size of the logical volumes with either of the following commands:
 - `vgdisplay -v /dev/<VG Name>`
 - `lvdisplay /dev/<VG Name>/<LV Name>`

For the required size for each file system, see [SAP Directories \[page 24\]](#).
8. Create the file systems that are required by SAP as follows:
`newfs -F vxfs -b 8192 /dev/<VG Name>/r<LV Name>`

Note

For more information about database-dependent block size recommendations, see SAP Note [1077887](#) .

9. Create mount directories using the following command:
`mkdir <mountdir>`
10. Add the new file system to `/etc/fstab`.

Example

`/dev/<VG Name>/<LV Name> /<mountdir> vxfs delaylog,nodatainlog 0 2`

Note

For database file systems see SAP Note [1077887](#)  “SAP on HP-UX: mount & file system options for best performance” (for example using concurrent I/O (CIO), direct I/O (DIO) or buffered I/O).

Note

When defining the mount order sequence in `/etc/fstab`, you have to consider mount order dependencies. For example, `/sapmnt/<SAPSID>` must be mounted before `/sapmnt/<SAPSID>/profile`.

11. Mount the file systems using the following command:

```
mount -a
```

End of 'Platform': HP-UX

6.3 Starting and Stopping the Instance Using Scripts

Use

You can start and stop the Gateway instance by running the `startsap` and `stopsap` scripts.

Procedure

Starting the Gateway Instance

1. Log on as user `<sapsid>adm` to the Gateway host.
2. Execute the command `startsap all G<XX>`, where `<XX>` is the instance number of the Gateway.

Example

If the instance number is 00, then the command is `startsap all G00`.

The startup log is written to `/home/<sapsid>adm/startsap_GXX.log`.

Stopping the Gateway Instance

1. Log on as user `<sapsid>adm` to the Gateway host.
2. Execute the command `stopsap all G<XX>`, where `<XX>` is the instance number of the Gateway.

Example

If the instance number is 00, then the command is `stopsap all G00`.

The shutdown log is written to `/home/<sapsid>adm/stopsap_G<XX>.log`.

6.4 Uninstalling the Instance

Use

The following procedure describes how to uninstall a standalone Gateway instance using the installer.

Procedure

1. [Start the installer \[page 34\]](#).
2. On the Welcome screen, choose ► *Software Life-Cycle Options* ► *Uninstall System / Standalone Engine / Optional Standalone Unit* ▾.
3. Follow the instructions in the installer screens.

i Note

To find more information on each parameter during the *Define Parameters* phase of uninstalling, position the cursor on the field of the respective parameter and press **F1**.

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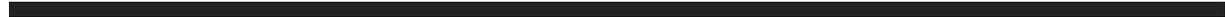
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